Made in United States of America
Reprinted from LIMNOLOGY AND OCEANOGRAPHY
Vol. 12, No. 2, April 1967
pp. 364–365

POLIKARPOV, G. G. 1966. **Radioecology of Aquatic Organisms** [Transl. from Russian]. Reinhold, New York. xxviii + 314 p. $16.50.

This book is one of the first attempts to assemble the literature on the radioecology of aquatic organisms. Since references on aquatic radioecology are numerous and widely scattered in the literature, there has long been a need for a reference book for those concerned with radioactivity in the aquatic environment. Dr. Polikarpov, as a research investigator, has made a significant contribution to this field and deserves much credit for having written this book.

The author has attempted 1) to state his views on the relationship between radioecology and other sciences, 2) to present information on artificial radioactive substances as an environmental factor in the hydrosphere, 3) to outline the principles and scope of marine radioecology, and 4) to discuss the accumulation of radionuclides and the effects of radiation in relation to the interaction of a radioactive environment with marine organisms.

Dr. Vincent Schultz and Dr. Alfred W. Klement, Jr., edited the English edition of this book. Scripta Technica Ltd., London, translated the Russian edition into English. Drs. Schultz and Klement expanded the source material on the references in the English edition and were assisted by Dr. Charles F. Lytle, Pennsylvania State University, who edited the references with Russian titles. The book provides an excellent review of Russian literature that has not been readily available in the past. The references have been listed under two headings—Russian and non-Russian. It is not clear just what advantage was achieved through this arrangement.

In my opinion, Dr. Polikarpov has included a number of statements in his book that can be questioned. For instance, on page 3, "The specific feature that distinguishes the biological effect of ionizing radiation from that of chemical substances is the absence of a threshold. . . . In other words, living systems are affected by any radiation dose, however small. . . ." However, many organisms that have been exposed to radiation have suffered no detectable effects. Thus, there are two theories on radiation effects: one, that there is no threshold; the other, that there is a threshold level of radiation necessary to bring about an injury to the exposed organism. Dr. Polikarpov did not emphasize these different views. Among other statements that can be questioned is one on page 170, "The greater part of the chemical mineral substances, and, therefore, by far the greater part of the corresponding radionuclides are consequently accumulated by marine animals other than with their food." This does not hold for all radionuclides nor for all animals. Actually, it is probably most frequent that food is the major source of accumulation of radionuclides by most marine animals.

A large amount of useful and readily available data is contained in this book. There are tables summarizing concentration factors for artificial radionuclides of the eight groups of the periodic table of elements in marine and freshwater plants

and animals. Also, data on the radiosensitivity of aquatic organisms are presented rather well considering the small amount of research that has been reported. The book, without doubt, will prove useful to aquatic radiobiologists and others interested in radionuclides in the hydrosphere.

T. R. RICE

Bureau of Commercial Fisheries,
Radiobiological Laboratory,
Beaufort, North Carolina 28516.